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Research Article

Vietnamese EFL Teachers' Readiness and Challenges in Integrating AI-Generated Feedback

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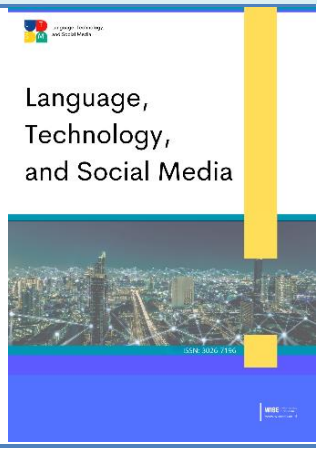
Abstract

This explanatory sequential mixed-methods study explores Vietnamese English as a Foreign Language (EFL) teachers' readiness and challenges in integrating AI-generated feedback into writing instruction. The study employed a quantitative approach, with data collected from 233 teachers, revealing moderate overall readiness (M = 3.09). Significant disparities were found across dimensions, with ethical awareness (M = 3.76) notably exceeding technological readiness (M = 2.87) and pedagogical readiness (M = 2.54). Qualitative interviews conducted with 15 teachers provided deeper insights into the challenges faced in AI integration, including pedagogical disorientation, ethical dilemmas due to a lack of institutional frameworks, and technical deficits, despite surface-level familiarity with AI tools. Successful adopters developed strategies to address these challenges, such as feedback sequencing, critical evaluation integration, and dividing tasks between AI and human feedback. The findings reveal a phenomenon of 'aware incompetence,' where high ethical awareness exists alongside substantial gaps in technological and pedagogical skills, functioning as a barrier to effective AI integration. The study underscores the importance of reconceptualizing professional development beyond technical skills, emphasizing the need for integrated pedagogical frameworks, ethical guidelines, and institutional support. These results contribute to the understanding of teacher readiness for AI integration in an underrepresented context, offering evidence-based strategies for enhancing AI-teacher collaboration in EFL writing instruction and suggesting avenues for future research focused on longitudinal studies and cross-cultural comparisons.

Keywords: AI-generated Feedback; Teacher Readiness; EFL Writing Instruction; Technology Integration; Vietnam.



INTRODUCTION

Since ChatGPT's public release in November 2022, generative artificial intelligence (AI) has transformed English as a Foreign Language (EFL) writing instruction [1]. Contemporary AI tools such as ChatGPT, Gemini, and Claude offer sophisticated, contextually aware feedback addressing both surface-level errors and higher-order concerns [2], [3], [4], [5], [6]. Research demonstrates AI feedback's effectiveness in supporting EFL writing development, with studies showing improved student motivation, reduced writing anxiety, and enhanced revision quality [7], [8]. Evidence suggests integrated feedback approaches combining AI and teacher feedback yield superior outcomes [9], [10], underscoring the need to understand how educators can effectively guide AI integration.

In Vietnam, where national education policies emphasize English proficiency enhancement and technology integration within a context of rapid digital transformation [4], AI-generated feedback represents a promising avenue for addressing persistent writing instruction challenges. These challenges include large class sizes (often exceeding 40-60 students), limited personalized attention, and constrained resources that characterize Vietnamese EFL education [5], [6], [12], [13], [14]. Vietnam's examination-oriented education system prioritizes test preparation over authentic communication [16], while traditional teacher-centered pedagogies predominate and hierarchical educational structures limit teacher autonomy [15], [17]. Despite policy support for digitalization, professional development opportunities remain limited due to resource constraints and institutional priorities [18].

While AI tools become increasingly accessible, teacher readiness for integration remains largely unexplored, particularly in Vietnamese contexts. Teachers occupy a central position as gatekeepers shaping AI integration trajectories [11]. Teacher readiness encompasses technological knowledge, pedagogical strategies, affective dispositions, and ethical awareness, fundamentally determining AI integration success [11], [12]. However, substantial research gaps persist. Limited empirical research investigates EFL teachers' readiness to integrate AI feedback tools, with most studies being conceptual or survey-based with small samples [17]. Vietnamese contexts are particularly underrepresented, despite the country's unique educational landscape characterized by examination-oriented instruction, Confucian-heritage learning culture, and insufficient professional development support [18], [19].

Both Mohammed and Khalid [7] and Tran [8] explicitly called for research examining teacher perspectives and implementation challenges. This explanatory sequential mixed-methods study addresses these gaps by investigating Vietnamese EFL teachers' readiness and challenges in integrating AI-generated feedback into writing instruction. The study advances the field through three contributions. First, it provides empirical evidence on teacher readiness in an underrepresented Asian context, addressing calls for geographically diverse technology integration research [20]. Second, it offers evidence-based strategies for AI-teacher collaboration derived from successful adopters, bridging the gap between theoretical frameworks and practical implementation. Third, it contributes theoretical insights by applying and extending technology acceptance frameworks to AI-generated feedback in EFL contexts, revealing the phenomenon of 'aware incompetence' [21], [22].

This study is guided by the following research questions: to what extent are Vietnamese EFL teachers ready to integrate AI-generated feedback tools into their writing instruction, and what

challenges and concerns do Vietnamese EFL teachers face when implementing AI-generated feedback, and how do they navigate these challenges?

LITERATURE REVIEW

Technology Acceptance Frameworks in Educational Contexts

Understanding teacher AI adoption requires robust theoretical frameworks that explain technology acceptance and integration patterns. The Technology Acceptance Model (TAM), proposed by Davis [23], posits that perceived usefulness (PU) and perceived ease of use (PEOU) predict technology acceptance. Venkatesh and Davis [24] extended TAM by incorporating social influence and facilitating conditions, recognizing adoption occurs within institutional and social contexts. Applied to AI-generated feedback, teachers are more likely to integrate AI tools when perceiving them as useful for improving outcomes and easy to operate, while adoption decisions are strongly influenced by colleague practices, institutional policies, and support infrastructure [25].

The Technological Pedagogical Content Knowledge (TPACK) framework offers complementary insights into effective technology integration. Mishra and Koehler [26] argued successful integration requires intersecting technological knowledge, pedagogical knowledge, and content knowledge. For AI-generated feedback, TPACK implies teachers need technical skills and pedagogical understanding of when and why to use AI feedback, how to sequence it with other sources, and how to guide students in interpretation. Teo [27] demonstrated TPACK significantly predicts technology integration intention. While TAM and TPACK frameworks have been applied to various educational technologies, their application to AI-generated feedback in EFL contexts remains limited, particularly in Asian settings where educational cultures differ substantially from Western contexts where these frameworks originated [28].

Evolution and Effectiveness of AI-Generated Feedback

Automated feedback in EFL writing has evolved from rule-based systems to sophisticated generative AI tools. Contemporary large language models generate contextually aware, detailed feedback addressing both local and global writing concerns [2]. Research on AI feedback effectiveness reveals both promises and limitations. Mohammed and Khalid [7] found AI feedback improved student motivation and reduced writing anxiety in EFL contexts. Tran [8] documented significant improvements in Vietnamese EFL learners' writing quality and revision frequency when using AI-generated feedback. Studies examining combined approaches demonstrate that integrated feedback strategies combining AI and teacher feedback yield superior outcomes compared to either alone [9], [10], suggesting AI should complement rather than replace human feedback.

However, performance remains uneven. Crosthwaite and Baisa [3] observed AI feedback demonstrates strength in addressing local issues grammar, vocabulary, mechanics but shows inconsistency in addressing global issues such as organization and argumentation. Output variability raises reliability concerns, as identical prompts yield different feedback across iterations. Nevertheless, immediacy, scalability, and 24/7 availability represent significant advantages, particularly in high student-teacher ratio contexts common in Vietnam [6]. These findings underscore that AI feedback effectiveness depends on how it is integrated pedagogically, highlighting the importance of teacher readiness and the need for evidence-based integration strategies that leverage AI's strengths while compensating for its limitations.

Dimensions of Teacher Readiness for AI Integration

Teacher readiness for AI integration constitutes a multi-dimensional construct extending beyond technical competence. Drawing from Celik et al. [11], readiness encompasses cognitive/technological readiness (knowledge of AI capabilities, limitations, technical proficiency), pedagogical readiness (ability to integrate AI with teaching practices and curricular goals), affective readiness (attitudes, beliefs, emotions toward AI), and ethical awareness (understanding of privacy, bias, academic integrity issues). This conceptualization recognizes technical competence alone does not ensure effective integration; teachers need pedagogical understanding, positive dispositions, and ethical consciousness to implement AI-generated feedback successfully [29].

Empirical investigations reveal concerning gaps between readiness dimensions. Yue et al. [12] found Chinese EFL teachers possessed limited understanding of AI capabilities despite positive attitudes, indicating awareness does not equal competence. Barrot [17] identified professional development as the most significant factor affecting readiness, yet most teachers report receiving no AI-related training. Almashour et al. [13] and Lu and Tang [14] documented teacher anxieties about professional identity and job displacement, while resistance often stems from lack of support rather than technophobia. Tondeur et al. [22] positioned teachers as gatekeepers whose readiness shapes the next generation's technology experiences. Research examining teacher readiness for AI integration remains limited, with most studies being conceptual or survey-based with small samples, lacking qualitative depth into teachers' lived experiences [30].

Vietnamese EFL Education: Contextual Factors Shaping Technology Adoption

Vietnamese EFL teachers face distinctive contextual factors affecting readiness that differ substantially from contexts where technology adoption frameworks were developed. Vietnam's examination-oriented education system prioritizes test preparation over authentic communication, with assessment practices shaped by sociocultural factors [18], [19]. Large class sizes (40-60 students) limit individualized feedback opportunities [5], [6]. Traditional teacher-centered pedagogies emphasizing transmission of knowledge conflict with student-centered approaches required for effective AI integration [31]. Hierarchical educational structures significantly impact teacher autonomy, with teachers expecting institutional guidance before acting [16]. Limited institutional support, including insufficient professional development and unclear policies regarding AI use, compounds these challenges [15], [32].

Professional development opportunities remain constrained by resource limitations and institutional priorities [15]. Despite national policies emphasizing digital transformation and a three-layer implementation model [4], gaps persist between policy and practice, with urban-rural digital divides affecting infrastructure and access [33]. Nevertheless, Vietnamese teachers demonstrate high motivation for professional development and pragmatic approaches to technology adoption when provided adequate support [33]. These contextual factors examination orientation, large classes, hierarchical structures, traditional pedagogies, professional development deficits shape how Western-developed frameworks like TAM and TPACK apply in Vietnamese settings and influence teacher readiness patterns differently than in contexts where these frameworks originated, necessitating context-sensitive approaches to AI integration research and practice.

METHODS

Research Design

This study employed an explanatory sequential mixed-methods design [34], collecting quantitative data first to measure readiness dimensions, followed by qualitative data to explain patterns and explore implementation challenges. This design enabled triangulation of findings and provided depth beyond what either method could achieve independently. The quantitative phase identified patterns and relationships among readiness dimensions, while the qualitative phase illuminated underlying reasons, contextual factors, and practical strategies.

Population and Sample

The quantitative phase recruited 233 Vietnamese EFL teachers from 15 universities across Vietnam through convenience and snowball sampling. While convenience sampling introduces selection bias, this pragmatic approach remained necessary given the exploratory nature of this research and the absence of a national database of EFL teachers. To mitigate bias, recruitment targeted diverse institution types (public and private), geographic regions (northern, central, and southern Vietnam), and experience levels. The qualitative phase purposively sampled 15 teachers from the quantitative sample to represent diverse readiness levels and AI adoption statuses [35]. Table 1 presents demographic characteristics of both samples.

Table 1. Sample Characteristics: Quantitative (N = 233) and Qualitative (N = 15)

Characteristic	Category	Quantitative Sample		Qualitative Sample	
		n	%	n	%
Gender	Female	159	68.2	9	60.0
	Male	74	31.8	6	40.0
Teaching Experience	< 5 years	67	28.8	1	6.7
	5-10 years	89	38.2	6	40.0
	11-15 years	52	22.3	5	33.3
	> 15 years	25	10.7	3	20.0
Highest Degree	Master's	193	82.8	11	73.3
	Doctorate	40	17.2	4	26.7
Institution Type	Public	168	72.1	11	73.3
	Private	65	27.9	4	26.7
AI Adoption Status	AI Users	98	42.1	7	46.7
	Interested Non-users	—	—	5	33.3
	Resistant Non-users	135	57.9	3	20.0

Research Instrument

The quantitative instrument comprised a 32-item questionnaire adapted from validated scales by Davis [23], Venkatesh and Davis [24], and Teo [27], selected for their established validity in educational technology contexts and alignment with the Technology Acceptance Model framework. Items were adapted through expert review by three EFL methodology specialists and pilot testing with 25 teachers. Face validity was established through expert panel review (content

validity ratios > 0.78 [41]). Exploratory factor analysis confirmed a four-factor solution (KMO = .91, Bartlett's χ^2 = 3847.52, $p < .001$, variance explained = 67.3%, factor loadings = .58–.84). The final instrument assessed four dimensions: technological readiness (8 items, $\alpha = .89$), pedagogical readiness (9 items, $\alpha = .91$), affective readiness (7 items, $\alpha = .87$), and ethical awareness (8 items, $\alpha = .88$). Confirmatory factor analysis confirmed the four-factor structure (CFI = .94, TLI = .93, RMSEA = .06). Table 2 presents the instrument structure with sample items. Responses employed 5-point Likert scales (1 = strongly disagree, 5 = strongly agree).

Table 2. Quantitative Instrument Structure and Sample Items

Dimension	Items	α	Sample Items
Technological Readiness	8	.89	I am confident in using AI-generated feedback tools; I can troubleshoot technical issues with AI platforms
Pedagogical Readiness	9	.91	I can integrate AI feedback effectively into my writing instruction; I know how to sequence AI and human feedback
Affective Readiness	7	.87	I feel enthusiastic about using AI in my teaching; I am comfortable with AI providing feedback to my students
Ethical Awareness	8	.88	I am aware of data privacy concerns with AI tools; I understand academic integrity implications of AI use

The qualitative instrument consisted of semi-structured interview protocols exploring teachers' experiences, challenges, and strategies. Interview questions were developed based on the TAM [36], [37] and TPACK framework [38], [39], [40], [41]. Sample TAM aligned questions included: 'How useful do you find AI-generated feedback for improving student writing?' and 'What challenges do you face when using AI feedback tools?' Sample TPACK-aligned questions included: 'How do you integrate AI feedback with your existing teaching methods?' and 'How does AI feedback complement or conflict with your pedagogical goals?' Questions underwent expert validation by two qualitative research specialists and were refined through two pilot interviews. Interviews lasted 45 – 60 minutes, were conducted via Zoom in Vietnamese, audio-recorded with participant consent, and transcribed verbatim.

Data Collection Procedure

Data collection occurred between March and June 2025 in two sequential phases. During the quantitative phase (March – April 2025), the questionnaire was distributed through direct emails to university faculty lists, Vietnamese EFL teacher Facebook groups, and professional networks. The Google Forms link was distributed to approximately 550 teachers, with two follow – up reminders sent. The target sample size (N = 200) was determined based on structural equation modeling requirements of 10 participants per estimated parameter [42]. The achieved sample (N = 233) provided adequate statistical power ($1-\beta > .80$) for detecting medium effect sizes ($f^2 = .15$) at $\alpha = .05$ [43]. During the qualitative phase (May – June 2025), quantitative data were analyzed, and 15 interview participants were purposively selected representing diverse readiness levels and contexts. All participants provided informed consent, were assured of anonymity and confidentiality, and retained the right to withdraw. Data were stored securely with encrypted files.

Data Analysis

Quantitative data analysis employed descriptive statistics (means, standard deviations), independent samples t-tests, and multiple regression analysis. Data screening procedures tested statistical assumptions. The Kolmogorov-Smirnov test confirmed normal distributions ($p > .05$). Univariate outliers ($|z| > 3.29$) resulted in three case exclusions (1.3%). Multivariate outliers were examined using Mahalanobis distance ($p < .001$). Multicollinearity diagnostics revealed acceptable VIF values (< 2.5) and tolerance values (> .40) [44]. SPSS 28.0 facilitated all analyses, with significance set at $p < .05$. Effect sizes were calculated using Cohen's d for group comparisons and standardized regression coefficients (β) for predictive relationships.

Qualitative data analysis followed Braun and Clarke's [36] thematic analysis approach. The researcher conducted initial coding of transcripts, identifying recurring patterns and themes. Member checking involved sharing preliminary findings with five interview participants for verification. Peer debriefing with two experienced qualitative researchers provided external perspective on theme development. Triangulation with quantitative findings strengthened validity. NVivo 14 supported data organization and coding.

Several limitations warrant acknowledgment. Convenience and snowball sampling introduce selection bias, limiting generalizability to the broader Vietnamese EFL teacher population. The cross-sectional design precludes causal inferences. The absence of cross-cultural comparison restricts applicability beyond the Vietnamese context. These limitations are mitigated through diverse sampling strategies, transparent reporting of sample characteristics, and context-specific interpretation. Future research should employ probability sampling and longitudinal designs.

RESULTS AND DISCUSSION

Teacher Readiness for AI-Generated Feedback Integration

Vietnamese EFL teachers demonstrated moderate overall readiness ($M = 3.09$, $SD = 0.58$) for integrating AI-generated feedback. On the 5-point scale, this score indicates emerging readiness requiring targeted support [30], falling below Wang and Lu's [28] finding for Chinese teachers ($M = 3.45$). Table 3 reveals pronounced disparities across dimensions, with AI users scoring significantly higher than non-users across all measures ($d = 0.76$-1.43).

Table 3. Readiness Dimensions by AI Usage Status

Dimension	Overall M (SD)	Users M (SD)	Non-Users M (SD)	t	d
Technological	2.87 (0.83)	3.64 (0.58)	2.35 (0.67)	8.12***	1.20
Pedagogical	2.54 (0.79)	3.48 (0.62)	1.89 (0.59)	9.45***	1.43
Affective	3.18 (0.71)	3.82 (0.54)	2.76 (0.62)	6.23***	0.98
Ethical Awareness	3.76 (0.62)	4.12 (0.48)	3.51 (0.58)	4.87***	0.76
Overall Readiness	3.09 (0.58)	3.76 (0.42)	2.63 (0.48)	10.34***	1.28

*Note. *** $p < .001$. d: Cohen's effect size.*

Ethical awareness ($M = 3.76$) exceeded technological ($M = 2.87$) and pedagogical readiness ($M = 2.54$) substantially. This paradox reflects three factors: pervasive AI discourse in Vietnamese

media creating awareness among non-users, educational culture emphasizing moral responsibility [19], [33], and ethical understanding requiring conceptual rather than technical knowledge. As one non-user stated: *"I read news about AI everywhere cheating concerns, privacy issues. I understand the risks even though I haven't used it myself"* (P13). Interviews revealed that moderate scores masked deeper complexities. Regarding technological readiness, teachers distinguished surface access from competence: *"I can open ChatGPT and get feedback, but I don't know how to write good prompts or judge if the feedback is correct"* (P9). For pedagogical readiness, uncertainty dominated: *"I don't know if I should give feedback before AI or after. What if AI and I disagree?"* (P7). These accounts explain why pedagogical readiness scored lowest.

AI usage emerged as the dominant readiness predictor ($\beta = .58$, $p < .001$), explaining 34% of variance ($R^2 = .34$). Demographic variables showed null effects (all $p > .15$), contradicting previous technology research linking experience with adoption. Qualitative data illuminated user-nonuser differences. Users described AI as enhancing capabilities: *"AI helps me focus on what I'm actually good at teaching critical thinking instead of spending hours on grammar"* (P5). Non-users expressed fear: *"AI will make teachers obsolete. Why would students need me?"* (P13). Users developed pedagogical frameworks for ethical concerns: *"I teach students to use AI as a first draft editor, then think critically about its suggestions"* (P6). Non-users lacked such frameworks: *"I don't know how to teach students to use AI responsibly because I don't use it myself"* (P14).

Integrating quantitative and qualitative findings revealed that moderate overall readiness (M = 3.09) concealed a phenomenon of 'aware incompetence' high ethical consciousness (M = 3.76) coexisting with substantial knowledge gaps in technological (M = 2.87) and pedagogical domains (M = 2.54). This 'aware incompetence' construct requires theoretical grounding and clarification. Drawing from Burch's [45] four-stage competence model unconscious incompetence, conscious incompetence (aware incompetence), conscious competence, and unconscious competence Vietnamese EFL teachers demonstrated characteristics of the second stage. Unlike unconscious incompetence (lacking both skills and awareness), this stage generates anxiety rather than confidence. In Castañeda et al.'s [29] digital teacher framework, this represents a transitional phase requiring support. The phenomenon proves particularly problematic here because ethical awareness typically facilitating becomes inhibiting when unaccompanied by implementation capabilities. As one teacher summarized: *"I know enough to be worried, but not enough to know what to do"* (P8).

Implementation Challenges and Navigation Strategies

Teachers reported high concerns about over-reliance (M = 4.21), pedagogical uncertainty (M = 4.08), and insufficient technical competence (M = 3.95). Institutional support deficits proved significant: 76.4% received no training, only 30.5% had institutional policies. Institutional support ($r = -.52$, $p < .001$) and professional development ($r = -.48$, $p < .001$) negatively correlated with challenge severity. Table 4 presents challenge categories and navigation strategies developed by successful adopters.

Table 4. Implementation Challenges and Navigation Strategies

Challenge	Evidence	Navigation Strategy
Pedagogical Disorientation	Uncertainty about role/timing (M = 4.08); *"How do I grade writing*	Feedback Sequencing: *"Students draft, get AI feedback and revise, then submit*

Challenge	Evidence	Navigation Strategy
	when I don't know how much was the student versus AI?" (P10)	*to me for content comments. Final version responds to both"* (P5)
Ethical Dilemmas	Over-reliance concerns (M = 4.21); 69.5% lacked policies; *"I'm not sure where the line is between acceptable and unacceptable AI use"* (P5)	Critical Evaluation: *"Students must explain why they accepted or rejected each AI suggestion. This forces them to think about language choices"* (P6)
Technical Deficits	Insufficient competence (M = 3.95); gap between access and expertise; *"I realized AI sometimes gives wrong corrections but don't know how to verify"* (P14)	Division of Labor: *"I let AI correct grammar. Then I focus on argument development and organization"* (P2)
Institutional Abandonment	76.4% received no training; support-challenge correlation (r = -.52); *"No training, no guidance, no resources"* (P3)	Self-Directed Learning: Trial-and-error experimentation with different tools and prompts; peer collaboration for troubleshooting

Teachers addressed over-reliance through specific strategies rather than prohibition. Critical evaluation integration proved effective: comparison exercises where students evaluated AI versus human feedback (P11), error-detection activities using intentionally flawed AI suggestions (P2), and justification requirements forcing students to explain acceptance or rejection of AI suggestions (P6). These transformed abstract concerns (M = 4.21) into manageable pedagogical challenges. Feedback sequencing prevented AI from replacing teachers while establishing structured integration. Division of labor capitalized on AI's strength in mechanics while preserving teacher expertise in higher-order concerns. High concern scores (M = 3.87-4.21) reflected genuine implementation difficulties rather than resistance, with structural barriers (76.4% training deficit, 69.5% policy absence) beyond individual control.

Discussion

The results of this study provide valuable insights into the readiness and challenges faced by Vietnamese EFL teachers in integrating AI-generated feedback into their writing instruction. While the overall readiness was moderate (M = 3.09), significant disparities were observed across technological, pedagogical, and ethical dimensions. This finding mirrors similar studies in the global context, such as Wang and Lu [28], who also reported variability in teacher readiness across different dimensions of AI integration. However, the Vietnamese context presents unique challenges that are not as pronounced in other regions, offering a new perspective on how culture and infrastructure shape the process of technological adoption.

A key finding from this research was the high ethical awareness among teachers (M = 3.76), which significantly exceeded their technological (M = 2.87) and pedagogical readiness (M = 2.54). This paradoxical situation, termed "aware incompetence," reflects a stage where teachers are cognizant of the ethical concerns associated with AI but lack the necessary technological and pedagogical tools to integrate AI effectively into their practice. This phenomenon is consistent with findings from Celik et al. [11], who argue that ethical considerations, while crucial, can become an impediment to effective implementation when not paired with adequate technical competence. The

notion of "aware incompetence" aligns with Burch's [45] competence model, where teachers' awareness of their shortcomings in technology use prevents them from fully adopting AI tools despite understanding their ethical implications.

The dominant role of AI usage as the key predictor of readiness ($\beta = .58$, $p < .001$) underscores the importance of direct engagement with AI tools in fostering readiness. This supports the assertion of Tondeur et al. [22], who found that hands-on experience with educational technologies significantly enhances teachers' readiness to integrate these tools. Successful AI adopters in this study demonstrated pragmatic strategies such as feedback sequencing and division of labor, which allowed them to overcome challenges related to technical deficits and pedagogical disorientation. These findings are in line with previous research by Khojasteh et al. [9] and Mohammed and Khalid [7], who highlighted that AI, when integrated properly, enhances writing instruction by addressing surface-level errors while allowing teachers to focus on higher-order cognitive skills like critical thinking and content development.

The challenges identified in this study pedagogical disorientation, ethical dilemmas, technical deficits, and institutional abandonment are not novel but are exacerbated in the Vietnamese context due to the country's hierarchical educational structure and the examination-oriented education system [16]. The pedagogical uncertainty expressed by teachers, as evidenced in their concerns about the sequencing of AI and teacher feedback, mirrors the challenges documented by Yue et al. [12] in China. This suggests that, in collectivist cultures, where hierarchical relationships influence pedagogical decision-making, AI integration may be hindered by traditional teacher roles and institutional resistance to change. Teachers in this study noted that a lack of institutional support and clear AI usage policies (with 76.4% reporting no training) further complicated the adoption process. This is consistent with the findings of Almashour et al. [13], who found that insufficient professional development and unclear institutional guidance were significant barriers to AI adoption.

Moreover, the concept of 'AI overload' reported by some participants, where they expressed concerns about becoming obsolete due to AI's role in feedback provision, highlights a critical issue that must be addressed in future AI integration frameworks. This reflects broader anxieties in the literature regarding the future of teachers in AI-enhanced classrooms, as discussed by Lu and Tang [14]. The implications of these findings are substantial, as they challenge the prevailing notion that resistance to AI adoption is primarily due to technophobia. Rather, resistance is often rooted in institutional and structural factors that impede teachers' ability to innovate effectively.

The novelty of this study lies in its identification of 'aware incompetence' within a unique educational context, providing a fresh perspective on the interplay between ethical awareness and pedagogical readiness. Additionally, the development of practical strategies by successful AI adopters offers a valuable contribution to the field, providing evidence-based approaches for teachers to integrate AI effectively without sacrificing their pedagogical autonomy. These strategies such as feedback sequencing, critical evaluation, and the division of labor serve as a foundation for future professional development programs, suggesting that successful AI integration requires not just technical training but a broader pedagogical framework.

Implications for practice are clear: AI integration must go beyond technical training and encompass pedagogical frameworks, ethical protocols, and institutional support. To address the gaps identified in this study, educational institutions should invest in comprehensive AI training programs that focus on practical integration strategies. Furthermore, the findings underscore the

need for clear institutional policies that guide ethical AI usage, address concerns about over-reliance, and support teachers in navigating the pedagogical complexities of AI integration. These policies should be informed by ongoing research and feedback from teachers, ensuring that they remain relevant as AI technologies evolve. Finally, the results of this study suggest that future research should focus on longitudinal studies to explore how teachers' readiness and AI integration strategies evolve over time. Comparative research across different cultural contexts, particularly in underrepresented regions like Vietnam, will further enrich our understanding of the global challenges and opportunities in AI adoption for EFL writing instruction.

CONCLUSION

This study explored the readiness and challenges faced by Vietnamese EFL teachers in integrating AI-generated feedback into writing instruction. The findings revealed a phenomenon of 'aware incompetence,' where high ethical awareness coexisted with significant gaps in technological and pedagogical knowledge. AI usage emerged as the key predictor of readiness, highlighting that experiential learning plays a critical role in capability development. Teachers faced four primary challenges: pedagogical disorientation, ethical dilemmas, technical deficits, and lack of institutional support. Despite these challenges, successful adopters developed strategies such as dividing tasks between AI and teachers, sequencing feedback, and integrating critical evaluation to foster student agency. The study contributes to technology integration research in three ways. First, it provides empirical evidence from an underrepresented Asian context, revealing how cultural factors such as hierarchical structures and examination orientation shape teacher readiness differently from Western contexts. Second, it extends existing frameworks (TAM and TPACK) by highlighting the barrier that awareness can pose when not accompanied by capability development. Third, it shows that teacher resistance often stems from institutional shortcomings rather than individual deficits, shifting focus from changing teachers to improving support structures.

For practitioners, the strategies developed by successful adopters offer practical frameworks for AI-teacher collaboration. These findings suggest that AI integration requires more than just technical access; it demands comprehensive support, including pedagogical frameworks, ethical protocols, and institutional policies. Future research should focus on longitudinal studies, comparative research across different cultural contexts, and the exploration of 'aware incompetence' in other emerging technologies. As AI tools continue to evolve, understanding teacher readiness and providing sustained support will be crucial to enhancing the effectiveness of AI in writing instruction.

LIMITATIONS

This study acknowledges several limitations affecting interpretation and generalizability of findings. The convenience and snowball sampling approach, while pragmatic given the exploratory nature of this research and absence of a national teacher database, introduces potential selection bias as participants who self-selected may possess higher technological awareness than the broader population. Cross-sectional data collection captured readiness at a single time point, precluding examination of how readiness evolves with experience; longitudinal designs would illuminate development trajectories. Self-reported data may be subject to social desirability bias; triangulation with observational data or student perspectives could strengthen validity. The study focused

exclusively on university-level EFL teachers in Vietnam, potentially limiting generalizability to other educational levels, subject areas, or cultural contexts with different educational structures. The rapid evolution of AI technologies means findings reflect the 2024 tool landscape; as capabilities expand, readiness requirements may shift, necessitating ongoing research. Finally, this study examined teacher readiness and implementation challenges without analyzing student learning outcomes; while teacher readiness represents a necessary condition for effective integration, future research should examine relationships between readiness levels, specific integration strategies, and student writing development to establish evidence for effective practice.

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AUTHOR CONTRIBUTION

The author conceptualized the study, designed the methodology, collected and analyzed data, and wrote the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

The author declares that no generative AI tools were used in the writing, editing, data analysis, or graphic design processes of this manuscript. All content was independently developed by the authors, who assume full responsibility for the originality, accuracy, and integrity of the work.

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